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Culture, Language, and the Location of High-Order Service Functions: The Case of Montreal and Toronto

Mario Polèse

INRS Urbanisation, Culture and Society, University of Quebec, 3465 rue Durocher, Montreal, QC H2X 2C6, Canada
mario.polese@inrs-ucs.uquebec.ca

Richard Shearmur

INRS Urbanisation, Culture and Society, University of Quebec, 3465 rue Durocher, Montreal, QC H2X 2C6, Canada
richard.shearmur@inrs-ucs.uquebec.ca

Abstract: Today, there is plenty of evidence of metropolization—the concentration of economic activity, particularly of high-order services—in the world's largest cities. Furthermore, within most national systems, the urban hierarchy is stable, especially toward the top: cities that were the largest 100 years ago continue to dominate their respective systems today. In Canada, however, this is not the case. Over the past 40 years, there has been a reversal at the top of the urban hierarchy, with Montreal losing its dominance in favor of Toronto. In this article, we document the reversal and elaborate a model that accounts for the spatial shifts in high-order services. Our analysis reveals the continued relevance of culture and language and suggests that there are limits to the concentration of high-order service activity. This finding is corroborated by a more detailed look at occupational shifts within a variety of key economic sectors in Montreal and Toronto. We conclude by suggesting that these results and the model we put forward to explain them have implications that go beyond Canada: even in a globalizing world in which the constraints of distance are lessened, cultural and linguistic factors will continue to play an important role in determining the spatial distribution of high-order economic activity.

Key words: high-order services, culture, language, location model, Montreal, Toronto.

> The 1960's belong to Montreal. Our city will become the London, the Paris, the great cosmopolis of Canada and all North America.
> —Jean Drapeau, Mayor of Montreal, 1960, quoted in Roberts (1969, 341)

The optimism expressed in the opening quote was not totally unwarranted in 1960.[1] Montreal was Canada's largest metropolis and international hub, as it had been since the founding of the Canadian federation. But Montreal would soon be overtaken by it is old rival, Toronto. Such reversals are extremely rare in the economic geography of nations, a point to which we return later. Drawing from this example and from its particular historical circumstances,

[1] Many of the arguments presented here are based on earlier work on the Montreal economy, initially published in Canadian and/or French-language sources (Coffey and Polèse 1991, 1993; Polèse 1985, 1990). In this respect, we acknowledge our intellectual debt to William J. Coffey, a frequent coauthor. This article allowed us to update and revisit earlier writings.

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this article outlines a location model for high-order services that integrates cultural, social, and linguistic factors by combining a Christallerian (Christaller 1933) and a Weberian (Weber 1929) approach.

A Christallerian approach enabled us to define what is meant by the "top" of an urban hierarchy—that is, a large diversified city that specializes in the widest variety of service sectors, particularly high-order services (which are the focus of our article). It also introduced the idea of a hinterland for each city. This approach allowed us to document the reversal, since we show that Toronto overtook Montreal in absolute size and high-order service functions during the 1970s.

Documentation is not explanation. To explain the shift, we use a historical approach: the ongoing political and cultural development of Canada, especially the rise of a Francophone elite in Quebec, are the basic explanatory factors behind the shift. This development led to the shrinking of Montreal's hinterland as the city ceased to dominate Anglophone Canada as a whole and dominated only Francophone Quebec.

From these particular circumstances, we generalize and propose a formal model that makes explicit the mechanisms through which such political and cultural changes affect the location of high-order services. On the basis of a Weberian approach to the location of economic activity, we propose a way in which cultural and linguistic barriers can be introduced so that the model is applicable to the location of high-order services.

In a globalizing world in which the rise of world cities and the concentration of global command functions is often taken for granted (Sassen 2001), the relevance of cultural and linguistic barriers to the location of high-order services—which has been obvious within Canada—takes on a more general significance. Notwithstanding the idea that markets are increasingly accessible and that location may no longer be important for high-order services (Cairncross 2001; O'Brien 1992), our appeal to Weberian location theory emphasizes that place still matters. Through the example of Montreal and Toronto, we present an approach to the location of high-order services that introduces—in a formal way—some of the cultural complexity that is inherent in understanding the role, function, and location of high-order services (Illeris 1996; Marshall and Wood 1995).

The article is structured as follows. First, we document the particular historic circumstances surrounding the shift at the top of Canada's urban hierarchy from both a historic and a comparative perspective. Second, we present some general hypotheses as to why the reversal took place and some more specific ideas on the mechanisms through which this reversal may have influenced the location patterns of high-order services. Third, after briefly reviewing some of the more general literature on the location of high-order services, we propose a location model that accounts for the hypotheses drawn from our historical analysis. Fourth, we present empirical data for our model. Finally, we return to the wider question of the effects of culture, politics, and language on the location patterns of high-order services.

Reversal at the Top of the Urban Hierarchy

In the past half a century, Canada's urban hierarchy underwent a major shock. Montreal, Canada's largest city since the beginning of industrialization, was overtaken by Toronto.[2] This marked a clear break with past trends (see Figure 1). Such reversals at the top of a national urban hierarchy are extremely rare. We know

[2] All references to "cities" and all data used to describe them refer to metropolitan areas, specifically census metropolitan areas in the Canadian case, analogous to metropolitan statistical areas in the United States.

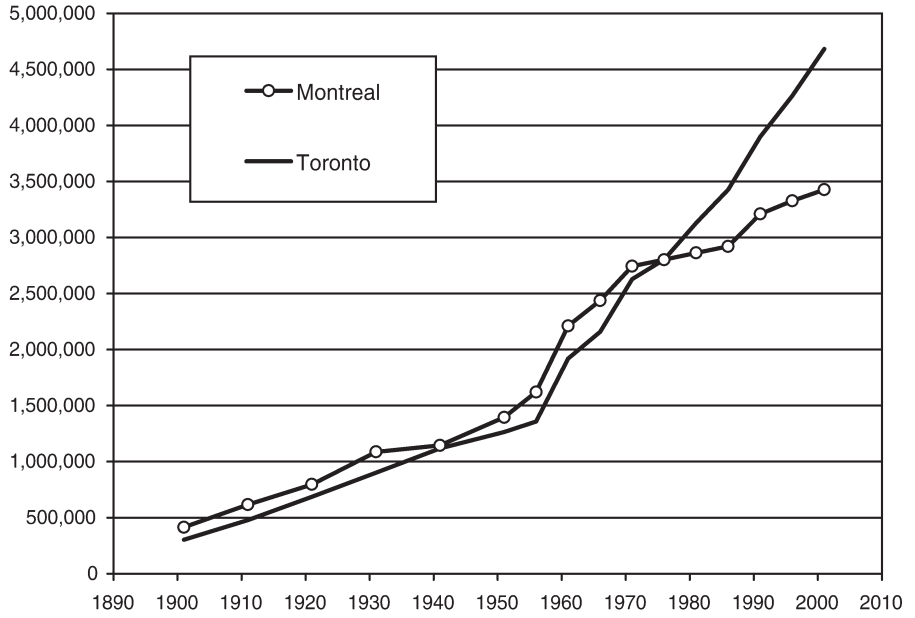


Figure 1. Population of Toronto and Montreal metropolitan areas from 1901 to 2001. *Sources*: Statistics Canada (decennial censuses since 1921–1961; every five years since 1966).

of no analogous case in the industrialized world (in the twentieth century) in which the first city was ousted from its position at the top.[3] As Davis and Weinstein (2002) noted, inherited economic geographies are stable, reflecting the accumulated advantages of decades (even centuries) of investment in infrastructure and accrued agglomeration economies. Once an urban hierarchy is in place, it is difficult to alter, barring a major exogenous shock. Sharma (2003) made the same point for the Indian urban system.

[3] Sydney overtook Melbourne early in the twentieth century: in 1901, their respective populations were 497,000 and 501,000 (Woods 2000). However, this was the result of nineteenth-century dynamics and emphasizes our point that a reversal is extremely rare once an urban hierarchy is in place, which did not occur in Australia until after federation took place in 1901. Prior to 1901, the Australian nation, let alone its urban hierarchy, was not fully in place.

Why Did Montreal Fall from First Place But Not New York?

The exceptional nature of the Montreal-Toronto reversal becomes clearer when we compare the Canadian experience with that of the United States. Both nations were settled from east to west. In this respect, a comparison between Montreal and New York is instructive. Montreal, like New York, developed as the chief eastern port, with ancillary financial, wholesaling, marketing, and control functions. Prior to the 1960s, Montreal was Canada's chief international transportation and communications hub, its national railway network converging on the city,[4] and was the home of the largest shipping, rail, and airline companies. Montreal,

[4] With respect to rail, Montreal actually held a more dominant position (within its national system), combining the initial advantages of New York (for shipping) with those of Chicago (for rail), a point to which we return later.

like New York, was historically the first point of entry for immigrants. On the eve of World War II, the two cities had much in common. Each, in its own way, was the cosmopolitan metropolis of its respective nation, the home of much of each nation's business elite. In 1941, Montreal was Canada's leading banking center; its banks accounted for some 60 percent of the total domestic bank assets and some 74 percent of the total foreign assets held by Canadian banks (Higgins 1986, 51).

In the remaining decades of the twentieth century, Montreal lost its position at the top. New York did not. At the outset of the twenty-first century, Toronto clearly outdistanced Montreal as Canada's preeminent financial and business center (see Figure 2). New York occupied an equally dominant position within the U.S. urban system (see Figure 3). But New York has kept its position at the top *despite* the westward (and southward) shift in the geographic center of gravity of the U.S. economy and population.

The case of New York makes Montreal's fall from the top all the more surprising for two reasons. First, the shift to the West has been less pronounced in Canada. At the time that the Prairies' settlement was completed (the early 1920s), the four western provinces accounted for 28.2 percent of the Canadian population, according to the first census following World War I (1921). Some 65 years later, in 1986, their share stood at 28.9 percent, having since risen above 30 percent, chiefly because of rapid growth in the two most westerly provinces, British Columbia and Alberta. Some 70 percent of the Canadian population still lives east of Detroit.

The second reason why Montreal's trajectory relative to New York's is notable is that Montreal is not necessarily more poorly located for serving the Canadian West than its rival, Toronto. Compared to New York *within* the United States, Montreal is more strategically located *within* its national space. Indeed, one can argue that Montreal, within Canada, combines the locational advantages of New York and of Chicago. A look at a map will confirm that the "natural" east–west rail and road links converge on Montreal. Unlike New York, the natural hurdle of the Appalachians did not block

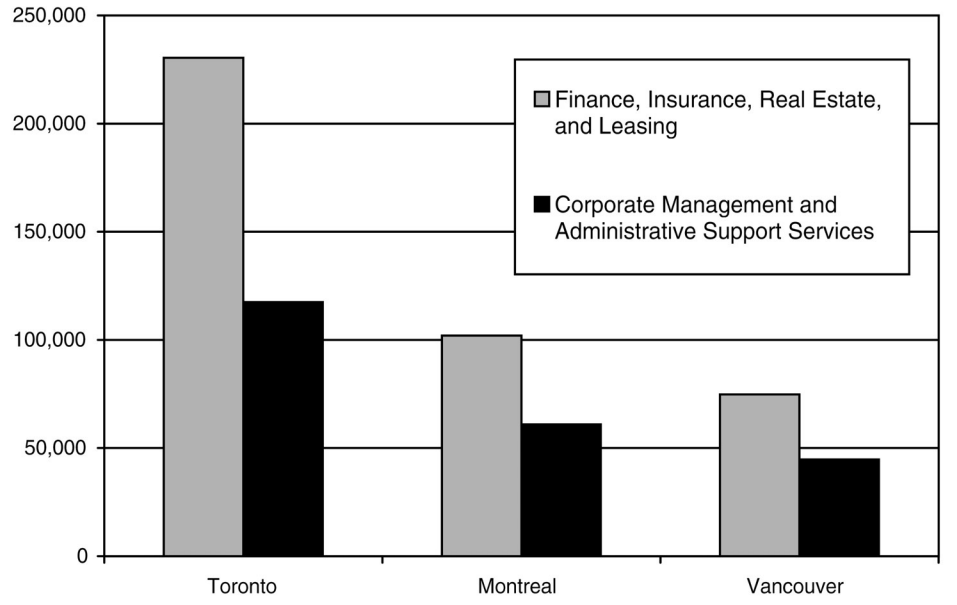


Figure 2. Employment in finance and corporate management services in Toronto, Montreal, and Vancouver, 2001. *Source*: Statistics Canada (2002), Table 31a.

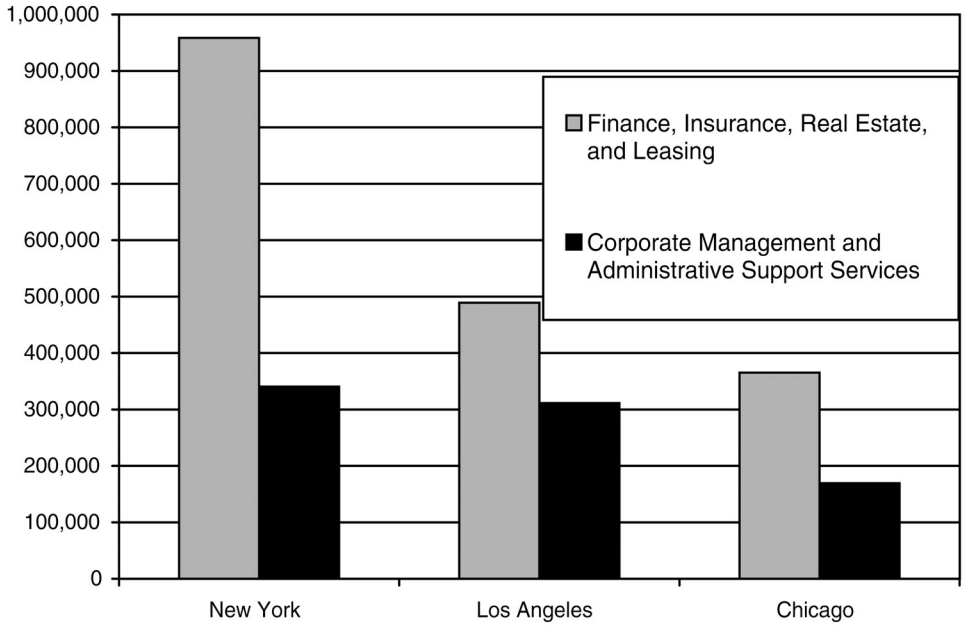


Figure 3. Employment in finance and corporate management services in New York, Los Angeles, and Chicago, 2000. *Source*: U.S. Bureau of the Census (2002).

Montreal's access to the West.[5] It is useful to recall that the settlement of the Canadian Prairies (roughly from 1880 to 1914) was organized largely via Montreal, with two Montreal-based institutions, Canadian Pacific Railways and the Bank of Montreal, as key players. The Canadian West was as much a part of Montreal's natural service hinterland as it was of Toronto's.

To summarize, the reversal at the top of the Canadian urban hierarchy cannot be explained by relative location or long-term regional shifts in population. The shift to the West cannot be used as an argument to explain the rise of Toronto. Montreal is no less "centrally" located today then it was half a century ago. How, then, can its fall from first place be explained? Let us leave North America and briefly consider the case of Vienna, which allows us to set the stage for asking the right questions.

The Phenomenon of a Shrinking Hinterland and the Case of Vienna

It is a basic precept of Christallerian central place theory that, ceteris paribus, a city's size is determined by the size of its market area or by what may be called its "natural" hinterland (Dicken and Lloyd 1990). Central place theory assumes that the primary role of cities is to produce and export services, acting as tertiary centers and marketplaces ("central places") for larger regions or nations. Although manufacturing cannot be neglected, few would disagree that it is primarily a city's strength as a service center (and thus the size of its hinterland) that determines its position in the national urban hierarchy, especially for those at the top. Arguably, with the rise of the modern service economy, this is even truer today than it was at the time when Christaller (1933) first developed his theory. If a city's

[5] Even with respect to U.S. markets, Montreal remains, to this day, the "natural" port of entry for the Midwest, at the head of the Great Lakes system. It is not a coincidence that many of the earliest explorations of America's interior and of the Mississippi Valley originated in Montreal.

place in the urban hierarchy is determined by the size of its hinterland, then Vienna serves as a good example of a city whose hinterland shrunk.

Like all major European cities at the time, the population of Vienna grew rapidly as the impacts of the Industrial Revolution spread over the continent. Vienna's population was probably under 300,000 in 1800 (estimates vary, see Chandler and Fox 1974; Hohenberg and Lees 1995). On the eve of World War I, the population of greater Vienna had surpassed the 2 million mark, an impressive growth, up from approximately 1.4 million in 1890 and 1.7 million in 1900 (Meyers 1909). Yet the first census after the war (1920) revealed that its population had abruptly ceased to grow, having shrunk to around 1.8 million, the beginning of a steady period of decline, bottoming out at around 1.6 million during the 1950s and 1960s (Gottmann 1962; United Nations 1995, Table A.15). Vienna's population has since started to grow again to attain the same population that it had a century earlier. What happened?

The answer is not difficult to find. Before World War I, Vienna was the political, financial, and cultural capital of an empire of 51 million people, covering some 261,000 square miles. After the war, following the collapse of Austria-Hungary, Vienna found itself the capital of a small republic of 6.5 million inhabitants and about 32,000 square miles. Whether defined by territory or by population, the nation of which it was the capital was now eight times smaller. In the vocabulary of economic geographers, this may be called the case (an extreme case at that) of the shrinking hinterland. Clearly, Austria's much-diminished boundaries reduced Vienna's role as a political capital, with a bloated civil service (destined to shrink). But, it also much reduced Vienna's market area for a broad range of services that were sensitive to political boundaries and institutional constraints. It is easy to understand why Vienna lost most of its hinterland and the consequences of this loss. Vienna's population adjusted (downward) to the new reduced size of its hinterland. But why should Montreal's hinterland have shrunk? Political borders did not shift in North America. Montreal is no less "centrally" located within Canada today than it was half a century ago.[6] The answer, we argue, lies in major cultural and linguistic changes that have occurred in Canada—particularly in Quebec—since the 1960s.

Montreal's Shrinking Hinterland and the Modernization of Quebec

In 1960, the Province of Quebec was an unequal society. French speakers were in the overwhelming majority, accounting for over 80 percent of the total population (65 percent in greater Montreal), but were, to use a popular turn of phrase, second-class citizens in their own country. The 1961 census revealed a profound social rift in the province (Raynauld, Marion, and Béland 1969). The average income of persons of British origin was over 50 percent higher than that of persons of French origin. Equally significant, the average income of persons who spoke *only* English was about twice that of those who spoke only French. Indeed, persons who spoke only English and no French had higher incomes than did those who were bilingual. Clearly, learning French was not profitable, and being French was even less so.

The unequal relationship between French and English had deep historical roots, going back two centuries to the conquest of Canada by the British. The English-speaking minority had, over the years, largely come to dominate business and commerce. English was the generally accepted medium of communication among business elites,

[6] This is not entirely true. Montreal's relative decline since the 1960s was followed, as would be expected, by changes in the spatial distribution of infrastructure. Thus, Toronto's air traffic expanded much faster than Montreal's, with the former now the nation's primary air transport hub, a clear locational advantage. But this is as much a consequence as a cause of the shifts that have occurred since the 1960s.

especially in Montreal, a large percentage of whom were of Anglo-Scottish ancestry. In a survey of the 83 largest corporations headquartered in Montreal before World War II, Jamieson (1938) reported that only 12 percent of the executive officers (on boards of directors) were of French origin. Hughes and MacDonald (1941) found that "English-controlled" firms accounted for 86 percent of the total asset value of the some 11,000 Montreal firms listed by Dun & Bradstreet at about the same period.

It is worth quoting Hughes (1963, 207–8), which remains a classic on pre-1960 Quebec:[7]

> The English people of Montreal are more than an ethnic minority in a city. They are, in fact, the metropolitan element of Canada's metropolis. Some among them direct the great economic institutions which operate throughout Canada and beyond the national borders. . . . English Montreal's hinterland is half a continent. . . . Those of the French who are in dominant positions are concentrated in institutions which have for their hinterland, not the continent, but merely the province.

It is doubtful that Hughes, writing in 1943, was aware how prophetic his analysis was. Following his line of reasoning, might not a change in business elites also cause a change in hinterlands?

The Quiet Revolution

This unequal relationship could not last and was potentially explosive in an overwhelmingly French province. The shock came in 1960 with the election of a new reformist "nationalist" government whose aim was to redress the imbalance.[8] During the 1960s, successive provincial governments invested massively in education, establishing a wide range of institutions, and created numerous crown (state) corporations that became the breeding ground for a rising young French business elite. In the 1970s, measures were introduced to advance the French language: the promotion of French in the workplace, restrictions on the use of English on public signs, and the requirement that children of newly arrived foreign immigrants go to French schools. Whatever one may feel about these measures, the results were striking. Within a generation, income disparities were largely erased. The 1991 census showed that French and English bilinguals (approximately at par) were now the highest income group, earning more than those who spoke only English (Vaillancourt and Touchette 2001). The sharpest reduction in disparities, specifically in Montreal, took place during the 1960s and 1970s; the initial wage disparity between English and French speakers (over 50 percent at the outset) all but disappeared by the late 1970s (Boulet 1979). By the 1980s, the social disparity between English and French was no longer a public issue.

The 1960s and 1970s were also, as may be expected, a period of accelerated social change and political upheaval. A small terrorist group, the FLQ,[9] whose reign was mercifully brief, was active during the 1960s. In 1976, a separatist government was elected, followed by a referendum on Quebec independence in 1980 (which the separatists lost), followed by a second referendum in 1995, which the separatists lost again, but by a narrow margin.[10] Understandably, many changes were not well received by the English-speaking

[7] The quote is taken from the seventh edition, published in 1963, but these lines were written in 1943 (the first edition).

[8] The period of the early and mid-1960s is referred to as *la revolution tranquille* (the quiet revolution), in no small part because it effectively marked a clear break with the past. How that period was viewed by some is mirrored in the title of a book written a few years later: *The Decolonization of Quebec* (Milner and Milner 1973).

[9] *Front de libération du Québec*, which collapsed in October 1970, following what came to be known as the October crisis, involving the assassination of a Quebec cabinet minister and the kidnapping of the British consul in Montreal.

[10] Support for separation has since waned and no longer appears an imminent threat.

community. Surrendering power and privilege is never easy. Yet, with hindsight, one can only marvel at the relatively peaceful and civilized manner in which the transition took place. In the space of a generation, the social fabric of the city was fundamentally transformed. If the object of social reform is to reduce (or eliminate) inequality, then the Quebec experience must be deemed an exceptional success, with few (if any) parallels in recent times.

However, few social changes come without a cost. The political climate, notably the possibility of separation after 1976, unquestionably had a negative effect on the Montreal economy. It was undoubtedly a factor in the decision of some English Montreal-controlled companies to transfer their head offices to Toronto. However, we argue that there were more fundamental cultural and social factors at play, which would have operated even if the separatist threat had not existed and caused Montreal inexorably to lose its continental hinterland. It is this loss of hinterland, caused by cultural and social factors, that resulted in Montreal's drop in Canada's urban hierarchy.

From a Christallerian perspective, it is the size of a city's hinterland that determines the city's relative importance as a high-order service center, but the causal mechanisms are not clear, since it is also true that a city's hinterland will extend if high-order services locate there. For instance, Los Angeles has become a global city (at least in terms of the film industry) because cultural industries have located there, not the reverse. The example of Los Angeles suggests that a shrinking hinterland can lead to a shift in the location of high-order services (as they adjust to a changing market), but it also suggests that a city's hinterland can shrink if high-order services move out. This example also suggests that a (local) hinterland may no longer be relevant in a globalized economy; our emphasis so far on the shrinking hinterland may therefore appear to be misplaced.

In the next section, we propose a general location model for high-order services that seeks to unravel—for these specific sectors—the effects of the size of a hinterland from the cultural, linguistic, and cost factors that may affect the location decisions of high-order services, even in a globalized world. First, we briefly discuss, in general terms, the location of high-order services.

The Location of High-Order Services

The location of high-order services has been documented by numerous researchers (Coffey and Shearmur 1997; Sassen 2001; Coffey 2000; Marshall and Wood 1995). Two approaches to this research can be distinguished. On the one hand, broad statistical analyses are performed; these analyses tend to show that high-order services follow location patterns that are commensurate with Christallerian central place theory (Coffey and Shearmur 1997; Moulaert and Tödtling 1995; Illeris 1996). In many ways, the work of Sassen (2001) extended this type of analysis to the international arena. This work has not gone uncontested; particularly from the international perspective, it has been argued that local cultural considerations serve to mitigate the move toward centralization that the global-city hypothesis implies (Jones 2002), and Taylor (1999) highlighted the data problems that arise as soon as cross-national evidence for the existence and role of global cities is sought.

The second approach is more qualitative: surveys are performed, and the decision-making processes of high-order service providers are investigated (Goe, Lentnek, MacPherson, and Philips 2000; Coe 1998; Bennett and Smith 2002; Jones 2002). This work uncovers explanatory factors that underlie the process of agglomeration—such as the importance of face-to-face contact, the need to be close to clients, and the proximity to qualified labor (Goe, Lentnek, MacPherson, and Philips 2000; Coe 1998)—and that may limit it—such as cultural factors (Jones 2002; Tickell 1999) and historic processes (Coe 1998).

It is not our intention here to review this literature, which has been covered by Coffey (2000), Tickell (1999), and Bryson and Daniels (1998). Rather, from the example of Montreal and from the particular circum-

stances that we have described, we propose a location model that can serve to explain the change in the location patterns of high-order services in Canada. This model draws concepts from, and is compatible with, much of the literature on high-order services; to that extent, we present it as a general model. It has been derived, however, specifically to explain what we have observed in Canada.

It should also be noted that the model does not explain why Toronto has overtaken Montreal at the top of Canada's urban hierarchy: the explanatory factors are political, social, and cultural, as we have described. However, the model seeks to unravel the way in which such factors can have an effect on the location of high-order services. As the fastest-growing sectors in the economy since the early 1970s (Coffey and Shearmur 1996; Moulaert and Tödtling 1995) and the key sectors in terms of the Christallerian urban hierarchy, understanding how political and cultural factors affect the location of these sectors will shed important light on the processes underlying the spatial economic shift that accompanied political and cultural changes in Canada.

A Simple Model

A location model for high-order services was first proposed by Coffey and Polèse (1984, 1986) and restated in Polèse (1994, 277–88). High-order services are defined as tradable services that do not necessarily require the consumer to travel (Illeris 1996; Marshall and Wood 1995). These are often intermediate services that are traded between firms or between establishments of the same firm. Management and control services provided by a head office to other establishments (of the same firm) are an example of the latter.[11] The framework addresses a wide range of services: management functions and consultants; other consultancies; advertising; tradable financial services (e.g., insurance, portfolio management, and equity trading); software design; and, more recently, an increasing variety of entertainment and information services, tradable via the Internet and other electronic media.[12]

The original Coffey-Polèse model uses a Weberian framework, which emphasizes spatial variations in production costs (including transportation), rather than variations in demand. Such an emphasis, which is also central to the revised model proposed here, is of particular relevance in a context in which it has been argued that decreasing communication costs are reducing the importance of location and local markets for high-order services (Cairncross 2001; O'Brien 1992).[13]

Indeed, our model is based on the assumption that a high-order service establishment must assemble inputs and deliver outputs, just like a manufacturing plant. Unlike plants, however, the establishment's inputs and outputs are largely intangible. They are identified by the generic term *information*, which covers intangibles, such as spoken advice or commands, written or electronic reports, and other service products with a high knowledge or artistic content. Like a factory that buys, transforms, and sells goods, a high-order service establishment acquires, transforms, and sells information. For goods, this implies transport costs, but for information, "communication cost" is the more appropriate term.

Like Weber's (1929) model of plant location, the objective is the minimization of cost, summarized by a simple equation:

[11] The most publicized case of a head office moving from Montreal to Toronto was Sun Life, Canada's largest life insurance company at the time. It is this case that was behind the original location model for high-order services. During the 1970s and 1980s, both the Bank of Montreal and the Royal Bank, Canada's largest, moved most of their head-office functions from Montreal to Toronto.

[12] The latter classes of services did not exist when Coffey and Polèse (1984, 1986) first proposed their model. However, as we shall show, the model is no less applicable to these new services.

[13] Other authors, such as Graham and Marvin (1996), have argued that communication technologies do not have this effect.

$$T = I_{in} + I_{out} + I_{output} \quad (1)$$

An establishment will seek to minimize its total unit cost (T) by minimizing the sum of the cost of obtaining information from within the firm (I_{in}), the cost of obtaining information from outside the firm (I_{out}), and the cost of transmitting its output (I_{output}).

In this context, what differentiates one metropolitan area from another for a producer of high-order services are the cost of place-specific sources of information (analogous to Weber's, 1929, resources) and the cost of transporting information (communication costs). Since codified information is now virtually ubiquitous, the type of information that plays a determining role in location decisions is tacit information—the type of information that can be transmitted only by face-to-face contact and is embodied in people. Thus, in the following discussion, we ignore costs that we do not consider essential in determining the location of high-order services, but acknowledge that a complete cost analysis would also take into account unskilled labor, property, taxes, and so on.[14]

The persons in which information is embodied can either be employed (an internal source of information) or brought in temporarily from outside as consultants (outside sources of information). Equation 1 then becomes

$$T = (w_l + r_l)\, L + (w_c + c_c)\, C + c_o O \quad (2)$$

where L is the units of skilled labor required to produce O, w_l is the unit cost of skilled labor (wages, commissions, social benefits, and the like), r_l is the unit recruiting cost of skilled labor, C is the units of outside consultant time required to produce O, c_c is the unit communication cost to gain access to information from consultants and to obtain necessary outside information (telephone; mail; air travel, including opportunity cost; the Internet; and so forth), w_c is the unit cost of consultants (fees, including wages, commissions, and social benefits), O is the unit of output, and c_o is the unit communication cost for transmitting O to the market (telephone; mail; air travel, including opportunity cost; the Internet; and so on).

An establishment will choose the location that will minimize T. In a straightforward Weberian world, one can treat each type of input separately, and one can conceptually distinguish the market from the source of inputs. Although the model that we propose is derived from a Weberian logic, its application is more complex for three reasons. First, the two inputs—employed labor and outside consultants—are substitutes to a large extent. Thus, the lowest-cost location will not necessarily be the location where the combined costs of gaining access to these two types of inputs are minimized. Since the weight of these two inputs in the final product can also change, the cost-minimizing combination of these two inputs must be identified for each location before a choice is made. Second, although we have conceptually separated skilled labor, outside information (consultants), and markets for high-order services, in many cases these three are to be found in the same location. This is particularly true for high-order service outputs that are costly to transport (such as consulting), and we return to this point in the next section. Third, linguistic barriers or differences in national or ethnic origin play the same role for communication and recruitment costs as do physical or geographic barriers for transport costs. It is more expensive to recruit skilled labor and to communicate across cultural divides.

With these three points in mind, we can distinguish two types of recruitment costs. The first—more traditional—ones are the recruitment costs incurred to "import" employed labor. Examples of such costs are the cost of attracting specialists from

[14] Our model applies to location decisions *between* different metropolitan areas. The costs enumerated here may be relevant at an intrametropolitan scale, but a high-order service establishment will not move from New York to Albany (for example) merely because rents are lower and unskilled labor is cheaper.

(Anglophone) Toronto to (Francophone) Montreal. We refer to these costs as *explicit* recruitment costs. In the course of our discussion, unless otherwise stated, it is these explicit costs that we refer to. The second ones are *implicit* recruitment costs. Managers and employees of a high-order establishment may not want to move (especially across a cultural divide); in effect, they are implicitly assigning a cost to this move—the cost of their own "recruitment" to the new location. These costs may explain why certain establishments (such as the headquarter offices of Montreal firms predominantly run by Francophone Quebecers) will move to the lowest-cost location *within their cultural sphere.*

In Equation 2, we did not distinguish between the implicit and explicit recruitment costs,[15] but—especially when choices are to be made across cultural divides—the playoff between them can be the key to understanding the cost-minimizing behavior of certain high-order establishments, especially that of headquarter offices.

What Pushes High-Order Service Establishments to the Top of the Urban Hierarchy?

Although the possibility of substituting C and L exists, the two inputs are not the same. Input C is, by definition, more flexible: a firm can more easily modify its information suppliers than its staff. In addition, information, especially on the output side (O), is generally less homogeneous or standardized than are material outputs. A ton of Grade X steel is a ton of Grade X steel. An equivalence of this sort is far more difficult to establish for high-order services. For a firm of management consultants, for example, the attributes of product O will vary from one client to another. Thus, the production function of a high-order service establishment cannot be read in exactly the same way as that of a manufacturing plant, even though we have expressed the relationships in a similar symbolic form. For such highly differentiated production (no two pieces of advice are identical), input combinations will constantly vary.

O thus refers to a basket of services, more or less standardized and predictable, depending on the circumstances. The less standardized O is, the more a firm will tend to substitute input C for input L. To respond to nonstandardized demand, an establishment must be able to combine information (C) and in-house labor (L) quickly in variable quantities. It is unlikely that all the information (C) that is necessary to meet customized (variable) demand will be embodied in L (in-house labor). It is rarely profitable to keep employees who are used only occasionally on the permanent payroll. Outsourcing (the purchase of type C inputs) will be the least-costly solution which means, by definition, access to a location with a highly diversified pool of skilled consultants *and* skilled labor. Diversity is largely a function of the size of a city and one of the foundations of agglomeration economies (Quigely 1998).

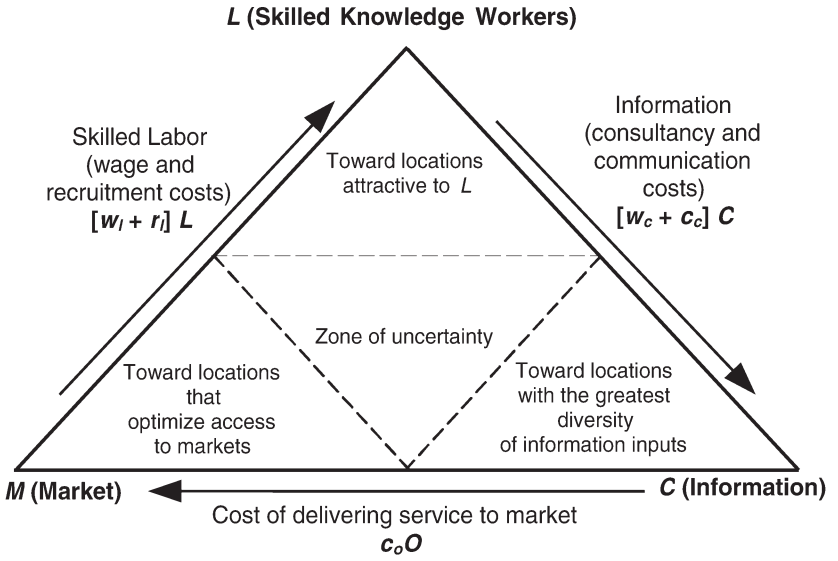
The highest-order service establishments, those that produce the least-standardized service outputs, will tend, ceteris paribus, to locate in cities that minimize the cost of C, that is, cities with a highly diversified pool of talent that can be rapidly accessed and subcontracted. This explains, in large part, the concentration of large consulting firms, advertising agencies, investment banks, and other high-order services in the largest cities at the top of the urban hierarchy. It also holds for complex head-office functions that rely on a diversified network of contacts and sources of information. World cities, such as London and New York, at the top of the hierarchy, offer the greatest diversity of C inputs, but also often offer the easiest access to L inputs as well, a point to which we shall return.

[15] To bring out the implicit and explicit recruitment costs, the r_l coefficient in Equation 2 should be divided into an implicit and an explicit component, r_{li} and r_{le}.

Geographic Orientation of High-Order Services

The location triangle, presented in Figure 4, summarizes choices that are available to establishments. The southwestern (M), southeastern (C), and northern (L) corners represent, respectively, the points at which market access (c_oO), information ($[w_c + c_c]C$) and skilled labor costs ($[w_l + r_l]L$) are minimized. For an establishment that is faced with high communication costs for delivering its service to clients (say, an accountancy firm), market access (c_oO) will be the determining factor. This holds for most services that require numerous contacts and meetings with customers; such establishments will locate at the center of their respective markets in accordance with central place theory. Most high-order services probably still fall in this class. It is worth noting that the local cost of the information inputs themselves—w_l and w_c—are not the primary determinants of location because the markets for skilled labor and for outside information (consultants) are not local markets, and their cost is comparable over space. The principal differentiating factor between locations is the cost of gaining *access* to information (whether through employees or consultants) and the cost of delivering it; for nonstandardized high-order services, these two will tend to vary together over space.

Establishments whose output (O) is less sensitive to distance, but whose production costs are sensitive to the diversity of information providers within close proximity, will be attracted to point C. They will include most services that are tradable over larger distances where the need for contact with consumers is limited: the conception of computer software (CDs travel well); production of films and television programs (DVDs and film reels travel well); and investment and portfolio management, whose transactions can be



The establishment will be drawn to the corner that is dominant in its cost structure. If the costs of bringing (or sending) the service to the customer is the primary factor in determining total costs, the establishment will be drawn to point *M*, thus minimizing c_o0.

Figure 4. The geographic orientation of high-order service establishments.

conducted electronically without the need for frequent face-to-face contacts. Much of the modern entertainment industry and the growing multimedia industry fall in this class. In this case, geographic centrality will be outweighed by production costs.

Some head-office functions also fall in this class, since c_oO costs are, by definition, internal to the firm and thus subject to transfer pricing, which does not necessarily reflect true costs. Head offices need not *necessarily* locate at the center of their (internal) market, allowing them to concentrate on C costs and to give greater weight to r_lL, specifically the implicit recruitment costs that reflect the location preferences of management and current employees. For establishments with extensive market areas, the minimum cost points C and M will often overlap, since cities that offer the greatest diversity of C inputs (the largest cities) also generally define the points at which access to national and international markets is maximized. Barring countervailing cost factors, a high-order service establishment with a widely traded product will *normally* move up the urban hierarchy as its market expands and as its production costs increasingly depend on access to a diversified range of C inputs.

L will exert the strongest pull in cases in which production costs rely heavily on a specialized pool of labor, internal to firms, and substitution possibilities for information outsourcing are limited. Examples are activities with a high in-house technical content (research and development, and laboratories), which are also often activities that cater to mobile knowledge workers who are attracted by particular lifestyle and amenities (researchers, professionals, and artists). Apart from large urban centers, such as New York, it is no coincidence that the highest concentrations of (private) laboratories and research centers are generally located in urban areas that are recognized for their quality of life: Boston and San Francisco. L may also dominate for many, if not most, head-office functions, not only because c_oO costs are generally not of great concern (markets internal to the firm are, essentially, captive markets), but also because other costs, including c_cC, are often drowned out in the general accounting structure of the firm,[16] and implicit recruitment costs play an important but often unacknowledged role.

It is not impossible, in some cases, that one city in the national urban system is the least-cost location on all three components. Paris enjoys such a quasi monopoly on location within the French urban system for many high-order services. For a large French investment bank, for example, Paris is most probably the location (1) where the market potential is the highest (O); (2) that offers the greatest diversity of information inputs (C); and, no doubt, (3) the place where a good number of rising professionals and managers aspire to live (L). Paris's position at the top of the urban hierarchy remains unchallenged, and it is difficult to see how it may be challenged, since no credible rival exits. The population of France's second urban center, Lyon, is barely one tenth that of the French capital.[17] There is little likelihood that this ratio will change in the foreseeable future.

No such absolute monopoly existed in the Canadian urban system (see Figure 1). Metropolitan Toronto's population was already over 70 percent that of Montreal's in 1901 and stood at 84 percent in 1956. The rapid rise since the 1960s of Toronto as Canada's preeminent high-order business center, supplanting Montreal, was only possible, in the first instance, because Toronto existed as a credible alternative to

[16] The costs of running the head office of a large multiestablishment firm are usually only a minor factor in the total cost structure of the firm. Also, head offices, although they should be treated as individual establishments from a location perspective, are rarely treated as distinct profit centers by firms. One of the authors surveyed numerous head offices during the early 1970s and early 1980s, both in Montreal and elsewhere (Polèse 1980, 1982).

[17] Recall that all of the examples refer to metropolitan areas.

Montreal.[18] However, given the sensitivity of high-order services to cultural variables, specifically as they affect communications and recruitment costs (c and r in the model), and given the major cultural changes that occurred in the 1960s, the changing location patterns of high-order services may well have contributed to finally tipping the balance in favor of Toronto.

We have shown that the Province of Quebec underwent a major social transformation beginning in the early 1960s, a corollary of the rapid modernization of French Canadian society. This transformation, as we shall show, was incompatible with the maintenance of Montreal as Canada's premier high-order service center.

Comparative Advantage Lost: What the Model Tells Us about Montreal and Toronto

The abrupt decline in English since 1960 in Quebec (see Figure 5) is the result, in about equal shares, of two changes: the outmigration of native-English speakers (which was related, in part, to the political climate) and the increase in the percentage of English Quebecers who became bilingual (also speak French). How should these changes have affected Montreal's *comparative* advantage for producing and delivering high-order services? We noted in our model that both communications costs (c) and recruitment cost (r) are sensitive to cultural considerations and to language. We discuss each variable more closely in light of what is known about the linguistic evolution of the Province of Quebec.

Most high-order service products (O) involve the use of language, either the written word, in the case of e-mail, reports, or other documents, or the spoken word, in the case of face-to-face contacts or other verbal exchanges. In the case of the written word, authors need to have not only the necessary language skills, but also the necessary clerical staff to support them. In the case of the spoken word, skills required are often more complex, going beyond language. Rapid transactions require not only that those involved can speak the same language, but also that they share cultural codes of behavior, significance, and meaning. When the persons involved come from different "cultures," the establishment of trust and of fluid interpersonal communication usually requires more effort and time. This is especially true for the most sensitive business transactions, particularly those involving management or finance.

Outside of Quebec, Canada is overwhelmingly English speaking. Its population is also about three times that of Quebec (about 22.5 million to 7.5 million in 2001 (Statistics Canada, census). Thus, a business service establishment that wants to serve *all* of Canada will need to deliver its service primarily in the English language and in a manner with which native-English speakers will feel comfortable. The establishment will be competing with other firms, offering the same service. It follows that, ceteris paribus, an establishment that is located in Montreal will be at a disadvantage compared to one located in Toronto. This does not mean that it is not possible to recruit English-speaking skilled labor in Montreal or that it is impossible to function in English in Montreal; rather, it means that Toronto is now a *comparatively* more cost-efficient location. Toronto-based firms have access to a far larger pool of diversified skilled talent (L) that can function in English and is at ease in an English-speaking world. An establishment that wants to hire fluent English speakers will face higher r_1L costs in Montreal.

On the other hand, the costs of hiring French speakers will be comparatively low

[18] The reasons why Toronto was a credible alternative are linked to Ontario's strong agricultural and mining sectors, its fast industrialization, and its good integration into America's industrial Northeast. Its role as Ontario's capital city may also be linked to the city's strength before it overtook Montreal. We thank an anonymous reviewer for stressing these points, which we cannot elaborate further here.

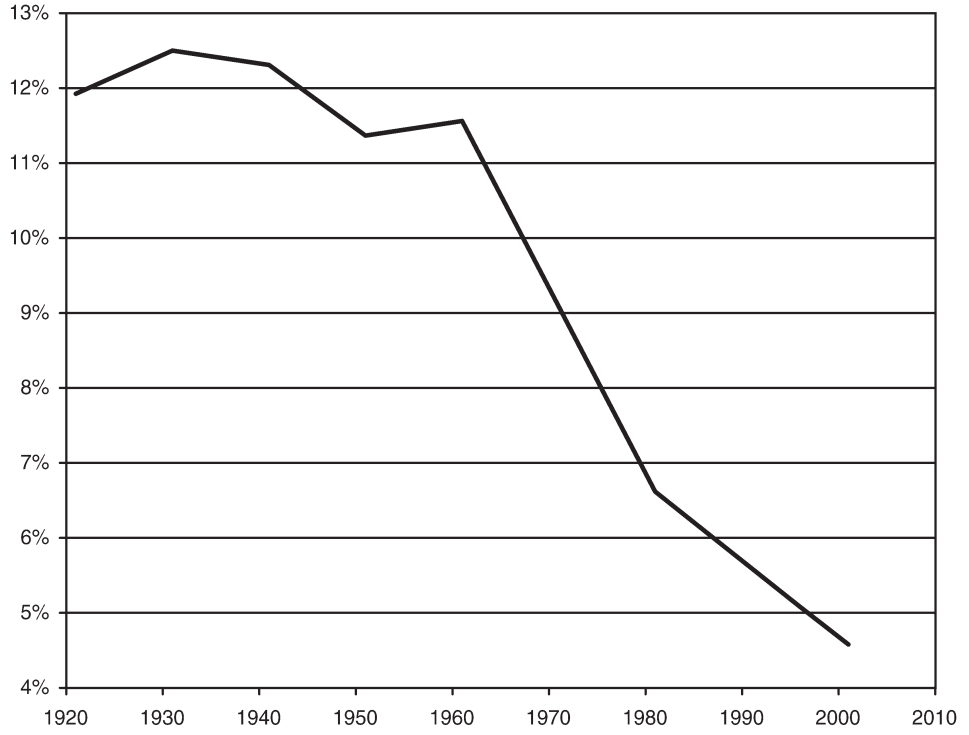


Figure 5. The percentage of Quebec's population that speaks English only, from 1921 to 2001. *Sources*: 1920 to 1950: Government of Quebec (1920–1950); 1950 to 1991: Termote and Gauvreau (1988); 1991 to 2001: Statistics Canada (1991, 1996, 2001).

in Montreal. However, because of the nature of the product, using French staff, even if they are largely bilingual, will mean both higher $c_o O$ and $c_c C$ costs. If the output (O) (say, a technical report) needs to be produced and communicated in English, then, in all likelihood, many, if not most, of the (outsourced) information inputs will also need to be in English. We may reasonably assume that the initial (wage) cost advantage, if any, of using French staff (L) to produce an English service output will be outweighed by higher $c_o O$ and $c_c C$ costs in Montreal. As we noted earlier, the more complex and less standardized the service output, the more the establishment will be drawn to the C corner of the location triangle, which generally defines the top of the urban hierarchy. Thus, establishments that produce the most-complex and least-standardized service products for English-language markets will be drawn to the top of the urban hierarchy, where communication costs for C (in English) are minimized. Since the 1960s, this place has indisputably been Toronto in the Canadian urban hierarchy.

For head offices and other administrative functions (internal to the firm) $r_l L$ takes on particular weight, in this case driven mainly by the perceptions of management and other senior staff. As we explained earlier, $c_o O$ and $c_c C$ can be discounted for head offices, in large part because they serve captive internal markets and are rarely seen as distinct profit centers. In essence, head offices have a large degree of freedom to locate according to the personal preferences (e.g., values, culture, and sense of identity) of management and other senior staff; to use the vocabulary introduced earlier, their implicit recruitment costs are introduced

into Equation 2. Culture and identity are determining factors, but generally do not have a significant impact in most nations, which are, by definition, culturally cohesive spaces. The largest head offices are "normally" drawn to the top of the urban hierarchy *within* given national or cultural spaces. The head office of a large French-controlled corporation will "normally" move up the ladder to Paris, but no farther. London or New York, although larger, will not be considered. The same reasoning can be applied within most other nations.

Canada is not a culturally unified space and has become less so since 1960, certainly from the perspective of business elites. As the French language gained ground in Montreal, it is not surprising that much of the (English-speaking) elite came to see Montreal less and less as "their" city. Montreal was less and less the cultural, media, and business center of "their" world. Toronto was increasingly perceived, and understandably so, as the Big Apple of English Canada. Like New York in the United States, Toronto was now where the action was, where the most influential "national" newspapers were published, and where the major (English) news networks had their offices. Once this transformation became apparent, it was little wonder that mobile (English) professionals and managers increasingly came to see Toronto as the place to be. It was also little wonder that English-controlled corporations (which were the great majority) began to transfer their head and administrative staffs from Montreal to Toronto, a movement that soon became self-reinforcing but is now largely complete.

In the next section, we look in greater detail at spatial shifts in management and administrative occupations *within* given industrial classes (as measured by employment). Changes in employment are a truer measure of spatial shifts in head-office functions than are recorded changes in the location of head offices as such (as given in Fortune 500 or analogous sources, for example). In some cases, for symbolic or historical reasons, the "official" head office will be given as City X, often the place where the company was founded, but the majority of head-office functions have long since moved to another, larger city. Thus, the Bank of Montreal still formally gives Montreal as the location of its head office. But, its chief executive officer (CEO), the majority of its board of directors, and the majority of its management staff now work in Toronto.

Spatial Shifts in the Employment of Managers and Administrative Support

To assess whether our model describes the changing location of high-order service employment in Canada, some of these trends are interpreted in light of the theoretical discussion just presented. As Figures 6 and 7 illustrate, it is not only jobs in high-order sectors that have shifted from Montreal to Toronto. *Within* a variety of key sectors of Montreal's economy, there has been a change from management positions to manual, clerical, sales, and scientific occupations. In other words, irrespective of shifts in employment, the occupational structure of these economic sectors has been shifting away from command functions in Montreal and toward command functions in Toronto.

Figure 6 illustrates this process. After we controlled for the total number of jobs, we found that in 1971, Montreal's economy harbored 8 percent more management positions than did Toronto's; by 1981, it harbored 11 percent fewer. This is a remarkable shift over a short period and is not attributable to Toronto's more rapid growth in employment. Rather, it indicates that irrespective of changes in total employment, Montreal's economy was shifting away from command functions. Over the next two periods—1981 to 1991 and 1991 to 1996—the relative decline continued but at a slower pace.

This general trend has been reflected in a number of sectors that are key to Montreal's economy. Relative to Toronto, the primary, air transport, aircraft manufacturing, pharmaceutical, wholesale, and banking sectors also shifted away from

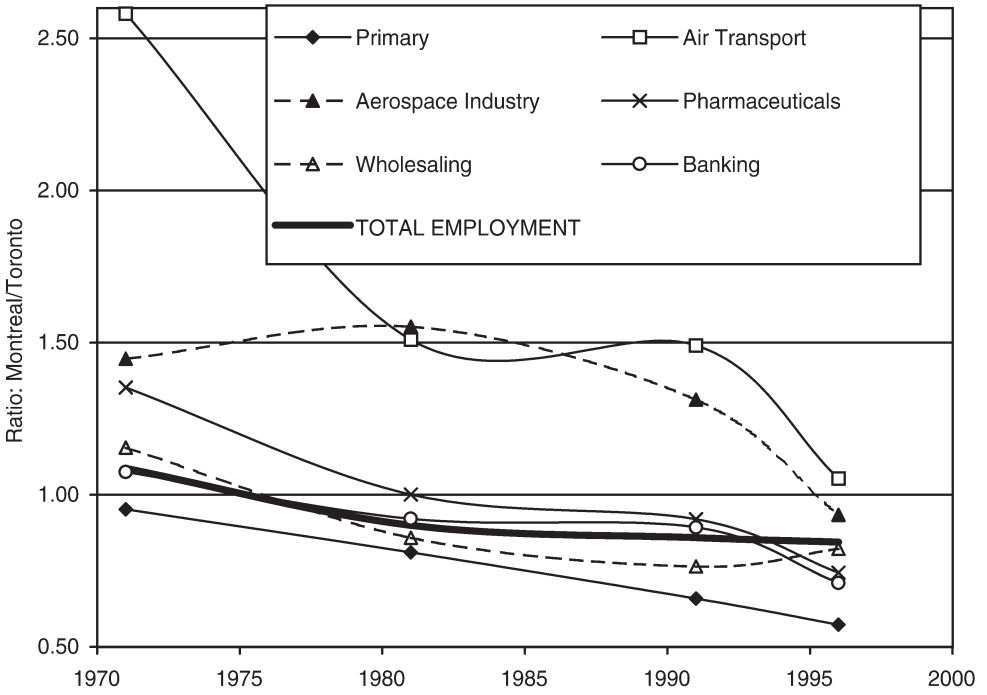


Figure 6. Ratio (Montreal to Toronto) of the percentage of managers in the workforce of selected industries: 1971 to 1996. *Sources*: Statistics Canada (1971, 1981, 1991, 1996).

command functions. This selection of sectors reflects both Montreal's "old" economy—Montreal has historically been a headquarter city for banks and primary-sector companies—and the "new" economy in which Montreal has heavily invested; Coffey, Polèse, and Shearmur (2000) emphasized that Montreal's economy has a strong high-tech manufacturing base, and provincial policies have done much to encourage growth in these sectors. While employment is strong in the pharmaceutical and aeronautics sectors, it is clear that Montreal is increasingly becoming a production and development center, whereas Toronto is consolidating a management role.

These trends are in keeping with the location model outlined earlier. Since these sectors rely on national and international markets, their management functions are attracted to a location where management resources are the most abundant. English-speaking managers are more likely to be recruited and retained in Toronto than in Montreal. But Toronto is not only a location that reduces the recruitment costs of qualified labor. It is also a location that reduces the cost of gaining access to strategic management information—both formal information derived from analysts and informal information related to finance and markets that is transmitted face-to-face. As Canada's financial and economic center, access to national and international networks is far easier in Toronto than in Montreal. For similar reasons, Toronto is the location that offers the widest access to markets; the markets for aircraft, raw materials, pharmaceuticals are international, and Toronto offers the easiest access—in terms of both physical location (frequent international flights and frequent visits by clients) and cultural affinity (most business is conducted in English, particularly in North America)—to markets.

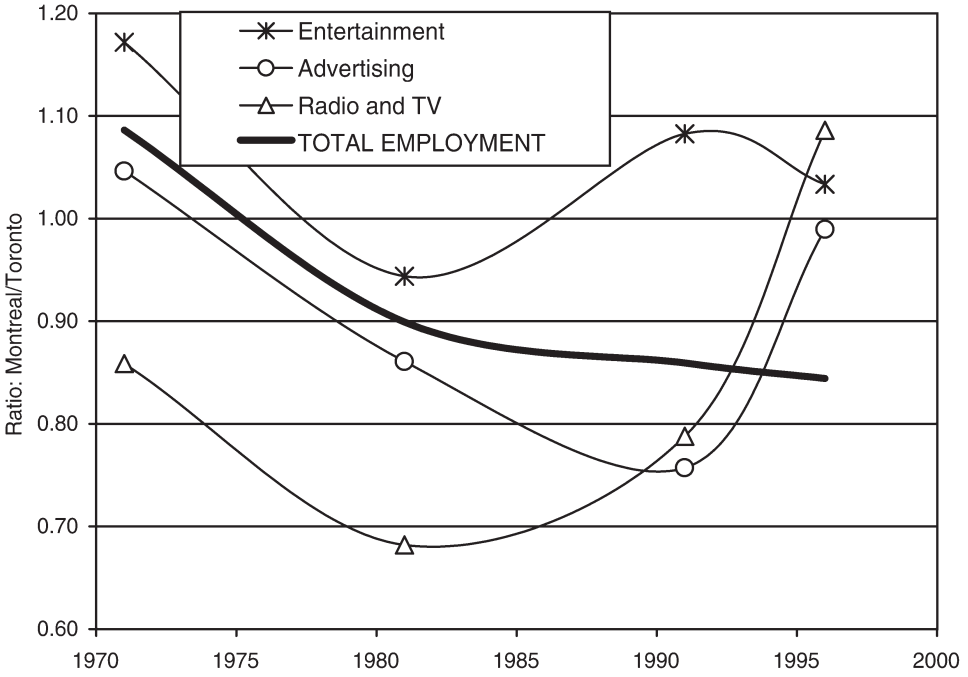


Figure 7. Ratio (Montreal to Toronto) of the percentage of managers in the cultural industries' workforce: 1971 to 1996. *Sources*: Statistics Canada (1971, 1981, 1991, 1996).

This interpretation of the trends is further corroborated when the same trends are analyzed for "cultural" industries. These sectors have different location requirements than do sectors with predominantly national and international markets. On the one hand, they also require access to clients, markets, and qualified labor; on the other hand, they serve well-defined and more impermeable markets. As Figure 7 shows, between 1971 and 1981, the trend in these sectors was similar to that of Montreal's economy as a whole: employment was shifting out of management positions relative to Toronto. Much the same reasoning can be applied to these sectors as to the sectors discussed earlier; Montreal, which was the cultural and economic capital of Canada until the late 1960s, lost this position during the 1970s. Thus, management functions within "cultural" industries shifted to Toronto, the new "best" location from which to serve a national market, recruit English-speaking managers, and gain access to national and international information networks.

However, Toronto is *not* a good location from which to serve the distinct Quebecois market. Thus, in this sector, a new Francophone managerial elite has emerged in Montreal because this city remains the cultural capital of Quebec and thus the best location from which to serve the provincial market, recruit Francophone managers, and gain access to Francophone (as well as national and international) information networks. This "cultural" sector, which serves a distinct market that *cannot* be served from Toronto for cultural reasons, has reconstituted its management structures. By 1996 the three sectors highlighted in Figure 7—entertainment, advertising, and radio and television—were once more on par with Toronto in terms of management occupations.

A Small But Secure Hinterland

The sensitivity of high-order services and head-office functions to culture and language means that some hinterlands are more secure than are others, and the evidence drawn from "cultural" sectors illustrates how such secure hinterlands may endure. Culture acts as a protective shield, like distance. In nations or economically integrated spaces (e.g., the European Union) that are characterized by sharp cultural divides, such divides will put limits on spatial polarization. This point suggests, as was argued in earlier writings, that Montreal's decline, relative to Toronto, will come to a halt in time when Montreal fully adjusts to its new reduced hinterland (Coffey and Polèse 1991; 1993). The most recent evidence suggests that this is indeed what is happening; the difference in employment in corporate management and administrative support services between the two cities (see Figure 2) appears to have stabilized since the mid-1990s (Statistics Canada 2002), and the sharpest *relative* decline in management occupations was over by the early 1980s. However, we shall need to wait for a longer time series to conclude with certainty that the Canadian urban system is indeed heading to a new equilibrium.

In the end, we suggest that it is the impact of spatial cultural divides on the recruitment costs of L (rL in our equation) that is the determining factor, specifically as it relates to the migration of persons in creative and management occupations. For a French-speaking professional, artist, or manager, Montreal represents the summit, the highest destination within his or her "national" urban hierarchy. The CEO of a growing French Canadian corporation may eventually move the corporation's head office to Montreal, but no farther. He or she will not move to Toronto, since a French-controlled firm headquartered in Toronto would be unimaginable. By the same token, French-language artists and other creative workers (journalists, newscasters, filmmakers, and the like) who aspire to a "national" or international career will flock to Montreal, the capital of their cultural space. The same holds true for English Canada: for ambitious corporate managers or blossoming artists in, say, Winnipeg or Halifax, their capital is Toronto, the city that represents, in all likelihood, the summit for their chosen careers, unless, of course, they wish to leave Canada. Naturally, leaving Canada is also an option for their French-language counterparts.

Synthesis and Conclusion

The Canadian urban system underwent a major change after 1960. The city historically at the top of its urban hierarchy, Montreal, was replaced by its old rival, Toronto, historically in second place. Such reversals are extremely rare, indeed exceptional. Montreal's fall from first place appears even more exceptional when we compare it with New York, which has remained the primary corporate and financial center of the United States despite a westward (and southward) shift in population and economic activity. Montreal's fall from first place cannot be explained by long-term shifts in the geography of population and economic activity in Canada or North America.

We suggested that Montreal's descent to second place is a product of what we called "the case of the shrinking hinterland." Montreal's "natural" service hinterland (that is, for high-order corporate and business functions) shrunk rapidly after 1960. Where, historically, its natural hinterland was all Canada, its natural service hinterland was basically reduced to that of the Province of Quebec. Central place theory suggests that, in time, cities (i.e., service centers) will adjust in size to fit the dimensions of their hinterland. But, why should Montreal's service hinterland have shrunk? We suggest that this phenomenon can be explained largely by the rise of French after 1960 as the dominant language of business in Quebec. The sensitivity of high-order services, including corporate management functions, to language and cultural codes explains why these wider trends have had such a marked effect on their location pattern within Canada, even

if their access to markets via fast-improving communications networks does not, at first glance, warrant the emphasis that we put on the hinterland hypothesis.

To formalize our observations relating to high-order functions, we presented a model for understanding the location decisions of high-order service establishments and corporate management units (i.e., head-office functions). The model stresses the importance of communication costs and recruitment costs for knowledge workers. Differences between markets in language and culture raise communications costs (for inputs and outputs) and cross-market recruitment costs. Canada outside Quebec is overwhelmingly English speaking. The francization of Quebec basically created two markets, where Montreal found itself increasingly at a disadvantage for serving the larger English market, compared to Toronto. The weight of cultural affinities in the location decisions of corporate management units also made it increasingly difficult for Montreal to hold on to (Anglo-owned) head offices. Our empirical analysis (for 1971 to 1996) showed a decline in management functions (within selected industries) in Montreal compared to Toronto with, however, a turnaround in the 1980s for the most culturally sensitive industries (e.g., advertising and broadcasting) as Montreal consolidated its hold on its culturally distinct (but smaller) hinterland.

The Canadian experience holds obvious lessons for Europe and perhaps for a globalized (but culturally diverse) world. Canada has been an economically integrated space for much longer than the European Union. Also, the psychological-cultural divide between the provinces of Quebec and Ontario is certainly far less than, say, the cultural divide between Germany and France. Yet, Montreal and Toronto each has its own high-order service hinterland, and each is the "center" (the summit!) for its "national" business elite. As long as cultural and linguistic barriers remain, economic integration can never be totally complete, of which the low cross-cultural mobility of labor is the most visible sign (thus, the importance of recruitment costs in our model). In Canada, services that can be efficiently centralized across cultural boundaries are converging on Toronto (most notably, financial services). However, we suggest that services that can be totally centralized, ignoring cultural differences, are less prevalent than is sometimes thought. The continued importance of face-to-face contacts and of the spoken and written word for the consumption of most services means that distinct urban hierarchies will continue to survive within distinct cultural spaces.

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